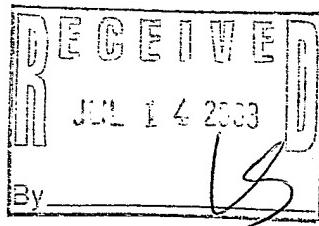


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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,242	09/14/2000	Kuansan Wang	M61.12-0319	1031

7590                    07/11/2003  
Theodore M Magee  
Westman Champlin & Kelly PA  
International Centre  
900 Second Ave South Suite 1600  
Minneapolis, MN 55402-3319



EXAMINER

ABEBE, DANIEL DEMELASH

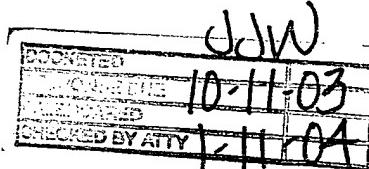
ART UNIT

PAPER NUMBER

2654

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



## Office Action Summary

Application No. <b>09/662,242</b>	Applicant(s) <b>Wang</b>	
Examiner <b>Daniel Abebe</b>	Art Unit <b>2654</b>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1)  Responsive to communication(s) filed on \_\_\_\_\_

2a)  This action is FINAL.      2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

4)  Claim(s) 1-48 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-11, 16, 17, 22-38, 42-44, and 47 is/are rejected.

7)  Claim(s) 12-15, 18-21, 39-41, 45, 46, and 48 is/are objected to.

8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some\* c)  None of:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

1)  Notice of References Cited (PTO-892)

4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)

5)  Notice of Informal Patent Application (PTO-152)

3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4,5

6)  Other:

Art Unit: 2654

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-11 and 22-32 are rejected under 35 U.S.C. 102(b) as being anticipated by

Takebayashi et al. (5,357,596).

As to claim 1, Takebayashi teaches a method for providing a dialog interface, comprising the steps of:

receiving user input;

applying the user input to a speech recognition unit and a language model (Fig.1; Fig.2, 11), to determine semantic element and scores; and

applying the semantic element and their score to a dialog model (Fig.1, 12) to select a semantic that describes the current state of a dialog (Figs.12-13; Col.14, lines 20-Col.15, line 23 ); and performing operation based on selected semantic output (Figs.10-11).

As to claims 3-4, Takebayashi teaches where the semantic representations are expanded through semantic memory inference (Figs.10-12).

As to claims 5-6, 8 -11 Takebayashi teaches where values resolved from previous input and inputs that are explicit and implicit are referred to generate a complete dialog output, see for

Art Unit: 2654

example where the entity for the cola is determined and replaced by referencing the database comprising multiple semantic tokens for the order in figure 12, (Figs. 13, 14-15; Col.14, line 41-Col.15, line 26 ).

As to claim 7, Takebayashi teaches where a semantic token is replaced (Fig.15A)

As to claim 22, Takebayashi teaches a system for providing a computer based dialog interface, comprising:

a dialog engine (Fig.1, 11-12); and

a rendering engine (Fig.1, 13).

As to claim 23, Takebayashi teaches where the dialog model comprises a recognition engine and a discourse engine (Fig.1, 11-12).

Claims 24-32 are system claim analogous to the method claims addressed above and are rejected for the foregoing reasons by Takebayashi.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takebayashi as

applied above, and further in view of Morin et al. (5,892,813).

Art Unit: 2654

As to claim 2, Takebayashi doesn't explicitly teach where multi-modal input is used.

Morin, however teaches a method for providing a dialogue interface, where the input interface is multimodal (abstract; Fig.3). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use multimodal input in Takebayashi teaching, in view of Morin, for the purpose of providing the user an alternative input means to the speech.

5. Claims 16-17, 33-38, 42-44 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takebayashi et al. as applied above, and further in view of Ladd et al. (6,493,673).

As to claims 16-17, Takebayashi doesn't explicitly teach where the inputs are described using markup language. Ladd, however teaches a speech dialogue system, comprising markup language, where grammars inputted by the user are translated into markup language (abstract; Col.35, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use markup language in Takebayashi teaching, in view of Ladd, for the purpose of providing the user access to documents available over the internet and other media sources.

As to claim 37, Ladd teaches a method of providing a dialog interface, comprising the steps of:

receiving input generated from a user;

determining a current dialog state, based on current and previous dialog; and

Art Unit: 2654

generating output and sending output data to the user (Figs.10-15). Takebayashi doesn't explicitly teach where the inputs are translated into markup language. Ladd, however teaches a speech dialogue system, comprising markup language, where dialogs inputted by the user are translated into markup language (Fig.4; Col.13, lines 44-62). The motive for combining the two arts are same as explained above.

As to claim 38, Ladd teaches where the inputs are converted into extensive markup language (Col.13, lines 41-43).

As to claims 42-43, Takebayashi teaches where semantics are generated as explained above and Ladd teaches translating user input into markup language.

Claims 44 and 47 are system claim analogous to the method claims addressed above and are rejected for the foregoing reasons by Takebayashi and Ladd.

#### *Allowable Subject Matter*

a. Claims 12-15, 18-21, 39-41, 45 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

b. The following is a statement of reasons for the indication of allowable subject matter: claims 12-15 and 18-21 are allowable because, applying a dialog semantic to a behavior model as claimed is not taught by Takebayashi.

With respect to claims 39-41, 45 and 46, the prior arts of record fail to teach applying the markup language document to a stylesheet language transformation.

Art Unit: 2654

***Conclusion***

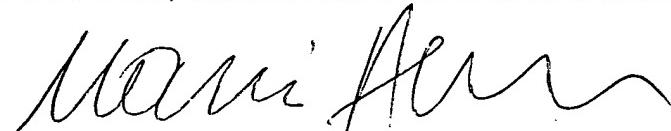
c. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chiapados et al. (6,356,869), see Fig.1, Col.1, lines 35-42.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Daniel Abebe whose telephone number is (703) 308-5543. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dorris To, can be reached at (703) 305-4827. The facsimile phone number for this group is (703)872-9314.

Any inquiry of general nature or relating to the status of this application should be directed to the Technology Center 2600 Customer Service office whose telephone number is (703) 306-0377

**Daniel Abebe, Patent Examiner-Art Unit 2654**



July 1, 2003

**COPY**

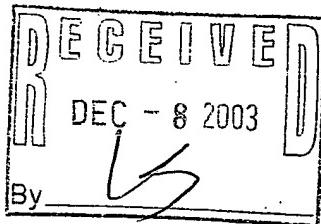
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,242	09/14/2000	Kuansan Wang	M61.12-0319	1031

7590 12/03/2003

Theodore M Magee  
 Westman Champlin & Kelly PA  
 International Centre  
 900 Second Ave South Suite 1600  
 Minneapolis, MN 55402-3319

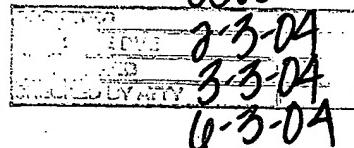


EXAMINER
ABEBE, DANIEL DEMELASH

ART UNIT	PAPER NUMBER
2655	9

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/662,242	WANG, KUANSAN
Examiner	Art Unit	
Daniel D Abebe	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

### A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 October 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11 and 13-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-11 and 13-21 is/are allowed.
- 6) Claim(s) 22-28, 32, 33, 37, 38, 42-44 and 47 is/are rejected.
- 7) Claim(s) 29-31, 34-36, 39-41, 45, 46 and 48 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 22-28 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Takebayashi et al. (5,357,596).

As to claim 22, Takebayashi teaches a system for providing a computer based dialog interface, comprising:

a dialog management engine (Fig.1, 11-12); and  
a rendering engine (Fig.1, 13).

As to claim 23, Takebayashi teaches where the dialog model comprises a recognition engine and a discourse engine (Fig.1, 11-12).

Claims 24-28 and 32 are system claim analogous to the method claims addressed

above and are rejected for the foregoing reasons by Takebayashi.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 33, 37-38, 42-44 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takebayashi et al. as applied above, and further in view of Ladd et al. (6,493,673).

As to claim 37, Takebayashi teaches a method of providing a dialog interface, comprising the steps of:

receiving input generated from a user;  
determining a current dialog state, based on current and previous dialog; and  
generating output and sending output data to the user (Figs.10-15). Takebayashi doesn't explicitly teach where the inputs are translated into markup language. Ladd, however teaches a speech dialogue system, comprising markup language, where dialogs inputted by the user are translated into markup language (Fig.4; Col.13, lines 44-62). The motive for combining the two arts are same as explained above.

As to claim 38, Ladd teaches where the inputs are converted into extensive markup language (Col.13, lines 41-43).

As to claims 42-43, Takebayashi teaches where semantics are generated as explained above and Ladd teaches translating user input into markup language.

Claims 44 and 47 are system claim analogous to the method claims addressed above and are rejected for the foregoing reasons by Takebayashi and Ladd.

#### ***Allowable Subject Matter***

A. Claims 1-11 and 13-21 are allowed. claims 1-11 and 13-21 are allowed, because applying a dialog semantic to a behavior model as claimed is not taught by Takebayashi.

B. Claims 29-31, 34-36, 39-41, 45, 48 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Response to Arguments**

Applicant's arguments filed 10/20/2003 have been fully considered but they are not persuasive.

With regard to applicant's argument alleging Takebayashi's failure for considering the state of the dialogue the examiner begs to differ and submits that Takebayashi states that "The dialogue management unit 12 makes the semantic determination of the response output content by using a dialogue history, a current dialogue state, a dialogue management procedure, and a **knowledge on specialized application field, and supplies the response output content information indicating the appropriate response output to be generated to the response generation unit 13**" Col.6, lines 55-58.

With regard to claim 37, it is claimed that "the markup language page is converted into output page" (based on the current dialogue and user interface). Ladd teaches where markup language is generated based on the status of the current dialogue state and interpreted by the markup language interpreter obviously according to the user interface "When the above markup language document is interpreted by the voice browser, the voice browser initially executes the STEP element called "init". First, the user will hear the text contained by the prompt element (i.e., "Please select a soft drink."). Col.17, 15-20; Fig.4.

Art Unit: 2655

For the above reasons the rejections with regards to claims 22-28, 32-33, 37-38, 42-44 and 47 should be sustained.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D Abebe whose telephone number is 703-308-5543. The examiner can normally be reached on monday-friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Art Unit: 2655

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

DANIEL ABEBE  
PRIMARY EXAMINER



November 27, 2003

<b>Notice of References Cited</b>	Application/Control No.	Applicant(s)/Patent Under Reexamination	
	09/662,242	WANG, KUANSAN	
	Examiner	Art Unit	Page 1 of 1
Daniel D Abebe	2655		

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,246,981	06-2001	Papineni et al.	704/235
	B	US-6,505,162	01-2003	Wang et al.	704/275
	C	US-6,044,347	03-2000	Abella et al.	704/272
	D	US-6,490,560	12-2002	Ramaswamy et al.	704/250
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

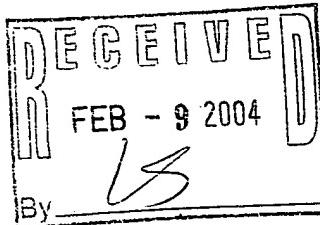
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,242	09/14/2000	Kuansan Wang	M61.12-0319	1031

7590            02/04/2004

Theodore M Magee  
 Westman Champlin & Kelly PA  
 International Centre  
 900 Second Ave South Suite 1600  
 Minneapolis, MN 55402-3319



EXAMINER
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ABEBE, DANIEL DEMELASH

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 02/04/2004

//

Please find below and/or attached an Office communication concerning this application or proceeding.

JJW

DOCKETED	3-3-04
RESPONSE DUE	3-3-04
CALENDARED	
CHECKED BY ATT	3-3-04

<b>Advisory Action</b>	Application No.	Applicant(s)
	09/662,242	WANG, KUANSAN
	Examiner	Art Unit
	Daniel D Abebe	2655

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

THE REPLY FILED on 1/20/2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY [check either a) or b)]**

- a)  The period for reply expires 3 months from the mailing date of the final rejection.
- b)  The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

- 1.  A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
- 2.  The proposed amendment(s) will not be entered because:
  - (a)  they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b)  they raise the issue of new matter (see Note below);
  - (c)  they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d)  they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

- 3.  Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
- 4.  Newly proposed or amended claim(s) 49-51 and the corresponding dependents would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
- 5.  The a) affidavit, b) exhibit, or c) request for reconsideration has been considered but does NOT place the application in condition for allowance because: of the same reason set forth in the final office action.
- 6.  The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
- 7.  For purposes of Appeal, the proposed amendment(s) a) will not be entered or b) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 1-11, 13-21, 49-51, 30, 31, 35, 36, 40 and 41.

Claim(s) objected to: 45, 46 and 48.

Claim(s) rejected: 22-28, 32, 33, 37, 38, 42-44 and 47.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

- 8.  The drawing correction filed on \_\_\_\_\_ is a) approved or b) disapproved by the Examiner.

- 9.  Note the attached Information Disclosure Statement(s) ( PTO-1449) Paper No(s). \_\_\_\_\_

- 10.  Other: \_\_\_\_\_



DANIEL ABEBE  
PRIMARY EXAMINER

**COPY**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named  
Inventor : Kuansan Wang

Appln. No.: 09/662,242

Filed : September 14, 2000

For : METHOD AND APPARATUS FOR  
PERFORMING PLAN-BASED DIALOG

Docket No.: M61.12-0319

Group Art Unit: 2654

Examiner: D. Abebe

**PETITION FOR ONE-MONTH EXTENSION OF  
TIME AND FEE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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COMMISSIONER FOR PATENTS, P.O. BOX 1450,  
ALEXANDRIA, VA 22313-1450, THIS

20<sup>th</sup> DAY OF October, 2003  
Theodore M. Magee  
PATENT ATTORNEY

Sir:

Pursuant to 37 C.F.R. § 1.136(a), Applicant hereby petitions for a One-month extension of time to respond to the Office Action dated July 11, 2003. Enclosed is a check in the amount of \$110.00 to cover the fee for the extension of time. If an additional extension of time is required, please consider this a petition therefor.

The Director is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 23-1123. A duplicate of this Petition for Extension of Time is enclosed.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: Theodore M. Magee

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TMM:sew

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named  
Inventor : Kuansan Wang

Appln. No.: 09/662,242

Filed : September 14, 2000

For : METHOD AND APPARATUS FOR  
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Docket No.: M61.12-0319

Group Art Unit: 2654

Examiner: D. Abebe

**AMENDMENT**

Mail Stop Non-Fee Amendment  
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20<sup>th</sup> DAY OF October, 2003.  
Thomas M. W.  
PATENT ATTORNEY

Sir:

This Amendment is in response to the Office Action  
mailed on July 11, 2003. Please amend the above-identified  
application as follows.

AMENDMENT TO THE CLAIMS

1. (Currently Amended) A method of providing a dialog interface in a computer system, the method comprising:

receiving user input;

applying the user input to a language model to determine a score for at least one surface semantic that describes the content of the user input;

applying a surface semantic to a discourse model to determine a score for at least one discourse semantic that describes the current state of a dialog with the user; and

applying a discourse semantic to a behavior model to determine a score for at least one action to be taken by the computer system; and

taking an action based in part on the score provided by the discourse model and based in part on the score provided by the behavior model.

2. (Original) The method of claim 1 further comprising:

receiving multiple modes of user input;

applying each mode of user input to a language model provided for that mode of user input; and

determining a score for at least one surface semantic for each mode of user input that is received.

3. (Original) The method of claim 1 wherein applying a surface semantic to a discourse model comprises expanding a discourse semantic structure by placing values in slots of the discourse semantic structure based on the surface semantic.

4. (Original) The method of claim 3 wherein expanding the discourse semantic structure further comprises:

accessing a discourse memory to retrieve an explicit value for an implicit reference in the surface semantic; and

placing the explicit value in a slot in the discourse semantic structure.

5. (Original) The method of claim 4 wherein accessing a discourse memory comprises accessing a discourse memory comprising:

a long-term memory having values resolved from previous user input;

an explicit memory having explicit values found in a current user input; and

an implicit memory having values resolved from an implicit reference in the current user input.

6. (Original) The method of claim 5 wherein accessing a discourse memory comprises accessing the explicit memory first, the long-term memory second and the implicit memory last.

7. (Original) The method of claim 3 wherein applying a surface semantic to a discourse model further comprises after expanding a discourse semantic structure determining if a semantic token in the discourse semantic structure can be replaced by an entity.

8. (Original) The method of claim 7 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity comprises searching for an entity in a database based on attributes found in the discourse structure for the semantic token.

9. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity further comprises determining that the semantic token can be replaced by an entity if only one entity is found during the search of the database.

10. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity further comprises determining that the semantic token cannot be replaced by an entity if multiple entities are found during the search of the database.

11. (Original) The method of claim 10 wherein applying a surface semantic to a discourse model further comprises:

retrieving multiple entities from a database as possible replacements for a discourse semantic token;  
adding the multiple entities as children of the discourse semantic token to form separate discourse semantic structures for each entity; and determining a score for each discourse semantic structure associated with each entity.

12. (Canceled)

13. (Currently Amended) The method of claim 12-1 wherein determining a score for at least one action comprises determining a score for an action of:

selecting one of multiple entities in a discourse semantic structure for a discourse semantic token;  
and

executing a command without asking the user to clarify which entity is correct for the semantic token.

14. (Original) The method of claim 13 wherein taking an action based in part on a score provided by the behavior model comprises taking the action of executing the command without asking the user to clarify which entity is correct for the semantic token.

15. (Currently Amended) The method of claim 12-1 wherein determining a score for at least one action further comprises applying an identity of an available user interface to the behavior model such that actions that are compatible with the available user interface receive generally higher scores than actions that are not compatible with the user interface.

16. (Original) The method of claim 1 wherein applying the user input to a language model further comprises describing the surface semantic using a markup language.

17. (Original) The method of claim 16 wherein applying a surface semantic to a discourse model further comprises describing a discourse semantic using a markup language.

18. (Original) The method of claim 17 further comprising applying a discourse semantic to a behavior model by converting the discourse semantic into an action described using a markup language.

19. (Original) The method of claim 18 wherein converting the discourse semantic comprises selecting a markup language for the action based on an available user interface.

20.(Original) The method of claim 19 wherein describing a discourse semantic using a markup language comprises describing the discourse semantic using an extensible markup language and wherein converting the discourse semantic comprises applying the discourse semantic to an extensible stylesheet language transformation.

21.(Original) The method of claim 20 further comprising:  
receiving an instruction from a user to change the available user interface; and  
applying the discourse semantic to a second extensible stylesheet language transformation to convert the discourse semantic into an action described using a second markup language.

22.(Original) A system for providing a computer-based dialog interface to a user, the system comprising:  
a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state based on the user's input and a previous dialog state; and  
a rendering engine that uses a model to identify a score for at least one action based on a current dialog state.

23.(Original) The system of claim 22 wherein the dialog state engine comprises:  
a recognition engine that uses a model to determine a score for at least one surface semantic based on the user input; and

a discourse engine that uses a model to determine a score for at least one current dialog state based on the surface semantic from the recognition engine and a previous dialog state.

24. (Original) The system of claim 23 wherein the current dialog state is represented by a discourse semantic structure.

25. (Original) The system of claim 24 wherein the discourse engine expands a discourse semantic structure based on the surface semantic before using a model to determine a score for the discourse semantic structure.

26. (Original) The system of claim 25 wherein the dialog state engine further comprises a memory that is accessed by the discourse engine to resolve implicit references found in the user input.

27. (Original) The system of claim 26 wherein the memory comprises:

- a long-term memory containing values determined from previous user input;
- an explicit memory containing values taken from explicit references made in a current user input;
- and
- an implicit memory containing values that have been resolved from implicit references made in a current user input.

28. (Original) The system of claim 25 wherein the discourse semantic structure comprises semantic tokens that provide a general representation of specific entities and wherein the

dialog state engine further comprises a database containing the specific entities that are represented by the semantic tokens.

29. (Original) The system of claim 28 wherein the discourse engine attempts to collapse a portion of the discourse semantic structure before using a model to determine a score for the discourse semantic structure.

30. (Original) The system of claim 29 wherein the discourse engine attempts to collapse a portion of the discourse semantic structure by looking for entities in the database that have the same attributes associated with one of the semantic tokens.

31. (Original) The system of claim 30 wherein if more than one entity has the same attributes associated with one of the semantic tokens, the discourse engine adds the entities to the discourse semantic structure below the semantic token, identifies a separate discourse semantic structure for each entity and generates a separate score for the separate discourse semantic structure associate with each entity.

32. (Original) The system of claim 22 wherein the rendering engine also receives an indication of the output interfaces that are available and wherein the rendering engine uses the model to identify a best action to take given the current dialog state, the score of the current dialog state and the available output interface.

33. (Original) The system of claim 22 wherein the dialog state engine describes the current dialog state to the rendering engine by using a markup language.

34. (Original) The system of claim 33 wherein the rendering engine converts the markup language describing the current dialog state into a second markup language that describes an action.

35. (Original) The system of claim 34 wherein the current dialog state is described using an extensible markup language and wherein the rendering engine utilizes extensible stylesheet language transformations to transform the extensible markup language into the second markup language.

36. (Original) The system of claim 35 wherein the dialog state engine further receives an indication from the user that they wish to change the output interface, and wherein the rendering engine changes the extensible stylesheet language transformation based on the change of the output interface so that the same extensible markup language description of the current dialog state is converted into a third markup language different from the second markup language.

37. (Original) A method of providing a dialog interface, the method comprising:

- receiving input generated by a user;
- determining a current dialog state based on the received input and a past dialog state;
- formatting the current dialog state into a markup language page;
- converting the markup language page into an output markup language page based on the current dialog state and an available output user interface; and
- passing the output markup language page to the available output user interface.

38. (Original) The method of claim 37 wherein formatting the current dialog state comprises formatting the current dialog state in an extensible markup language.

39. (Original) The method of claim 38 wherein converting the markup language page comprises applying the extensible markup language page to an extensible stylesheet language transformation.

40. (Original) The method of claim 39 wherein converting the markup language page further comprises selecting an extensible stylesheet language transformation that forms a proper output markup language page for the output user interface.

41. (Original) The method of claim 40 further comprising:  
receiving an instruction from the user to change the output user interface to a new output user interface; and  
selecting a different extensible stylesheet language transformation so that the output markup language page is appropriate for the new output user interface.

42. (Original) The method of claim 38 wherein formatting the current dialog state comprises formatting a discourse semantic structure into a markup language page.

43. (Original) The method of claim 42 wherein determining a current dialog state comprises:  
identifying a surface semantic in the input;  
formatting the surface semantic into a surface semantic markup language page; and

identifying a discourse semantic structure from the surface semantic markup language page.

44. (Original) A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state; and  
a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action.

45. (Original) The system of claim 44 wherein the rendering engine comprises extensible stylesheet language transformations that convert the markup language page representing the current dialog state into the markup language page representing an action.

46. (Original) The system of claim 44 wherein the rendering engine utilizes a document matching portion of extensible stylesheet language transformations to convert the markup language page representing the current dialog state into machine instructions representing actions that are not described in a markup languages.

47. (Original) The system of claim 44 wherein the dialog state engine comprises:

a recognition engine that receives user input and generates a markup language page representing the surface semantics of the user input; and  
a discourse engine that converts the markup language page representing the surface semantics into the

markup language page representing the dialog state.

48. (Original) The system of claim 47 wherein the recognition engine applies a document generating portion of extensible stylesheet language transformations to produce the markup language page representing the surface semantics.

REMARKS

In the Office Action, claims 1, 3-11, and 22-32 were rejected under 35 U.S.C. §102(b) as being anticipated by Takebayashi et al. (U.S. Patent No. 5,357,596, hereinafter Takebayashi). Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Takebayashi in view of Morin et al. (U.S. Patent No 5,892, 813, hereinafter Morin). Claims 16-17, 33-38, 42-44, and 47 were rejected under 35 U.S.C. §103(a) as being obvious from Takebayashi in view of Ladd et al. (U.S. Patent No. 6,493,673, hereinafter Ladd). Claims 12-15, 18-21, 39-41, 45 and 46 were objected to as being dependent on a rejected base claim but were indicated to be allowable if rewritten in independent form.

In the present amendment, claims 1, 13 and 15 are currently amended and claim 12 is canceled, leaving claims 1-11 and 13-47 pending.

Claims 1-21

With the present amendment, claim 1 has been amended to include all of the limitations of claim 12. As such, claim 1 represents claim 12 rewritten in independent form. Based on the indication in the office action that such a claim would be allowable, claim 1 and claims 2-11, and 13-21, which depend therefrom are now in form for allowance.

Claims 22-36

Independent claim 22 is directed to a system that provides a computer-based dialog interface to a user. The system includes a dialog state engine that receives input from a user and that generates a score for a current dialog state based on the user's input and a previous dialog state. A rendering engine then uses a model to identify a score for at least one action based on a current dialog state.

None of the cited references show or suggest a rendering engine that is able to identify a score for an action based on a current dialog state. In particular, neither Takebayashi nor Ladd show the scoring of an action based on a current dialog state.

In the Office Action, it was asserted that Takebayashi showed such a rendering engine in FIGS. 1 and 13. However, neither of these Figures shows a rendering engine that scores an action based on a current dialog state. Specifically, FIG. 13 does not show the scoring of an action based on a dialog state. Instead, FIG. 13 shows the scoring of two possible semantic representations of what the user has said. Using these scores, one of the semantic representations is selected as representing the user's input at step S115. Using this semantic representation, the system identifies a current dialog state at step S117. Since step S117 marks the end of FIG. 13, FIG. 13 does not show the further step of scoring possible actions based on the current dialog state. It only shows the identification of a current dialog state.

Ladd also fails to show or suggest scoring possible actions based on a current dialog state. As such, the combination of Takebayashi and Ladd does not show or suggest the invention of claim 22 or claims 23-36, which depend therefrom.

Claim 29

Dependent claim 29 depends from claim 22 and is additionally patentable over claim 22. Under claim 29, a discourse engine attempts to collapse a portion of the discourse semantic structure before using a model to determine a score for the discourse semantic structure.

Takebayashi does not show or suggest collapsing a semantic structure before determining a score for the structure.

Instead, Takebayashi simply fills slots in a semantic

representation directly from the user input. In addition, because Takebayashi's semantic representation only has one level, there is no way to collapse a portion of the structure. As such, Takebayashi does not show or suggest claim 29 or claims 30 and 31, which depend therefrom.

Claim 31

Claim 31 depends from claim 29 and includes a further limitation wherein if more than one entity in a database has the attributes associated with a semantic token in the semantic structure, each of the entities is added to the semantic structure and a separate score is generated based on each entity.

Takebayashi does not show or suggest adding multiple entities from a database to a semantic structure if the entities have attributes of tokens found in the semantic structure. Further, Takebayashi does not show or suggest scoring each of the entities. As such, claim 31 is additionally patentable over Takebayashi.

Claims 34-36

Claims 34-36 depend from claim 22 and include a further limitation wherein the rendering engine converts a markup language describing a current dialog state into a second markup language that describes an action.

Neither Takebayashi nor Ladd show or suggest converting one markup language into another markup language. Although Ladd does show defining a hierarchy of dialog states using a markup language, it does not show converting this hierarchy into another markup language as claimed in claim 34. As such, claims 34-36 are additionally patentable over the cited art.

Claims 37, 38, 42 and 43

Independent claim 37 is directed to a method of providing a dialog interface. The method includes receiving input generated by a user and determining a current dialog state

based on the input. The current dialog state is then formatted into a markup language page that is converted into an output markup language page based on the current dialog state and an available user interface. The output markup language page is then passed to the interface.

The invention of claim 37 is not shown or suggested by the combination of Takebayashi and Ladd. In particular, neither of these references shows or suggests converting a markup language page representing a current dialog state into an output markup language page based on the current dialog state and an available output user interface.

Although Ladd does show defining a hierarchy of dialog states in a markup language page, it does not show or suggest converting one markup language page into another markup language page. As such, it cannot show or suggest making such a conversion based on a current dialog state or an available user interface.

Since neither Takebayashi nor Ladd show or suggest converting one markup language page into another markup language page, the combination of these two references does not show or suggest the invention of claim 37, or claims 38, 42, and 43, which depend therefrom.

#### Claims 44 and 47

Independent claim 44 is a system for providing a dialog interface to a user. The system includes a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state. The system also includes a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action.

Neither Takebayashi nor Ladd show or suggest the system of claim 44. In particular, neither reference shows or suggests

an engine that converts one markup language page into another markup language page. As such, claim 44 and claim 47 which depends therefrom are patentable over the combination of Takebayashi and Ladd.

Conclusion

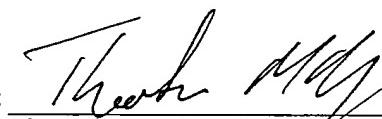
In light of the above remarks, claims 1-11, and 13-47 are patentable over the cited art. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By:



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RESPONSE UNDER 37 C.F.R. § 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 2600

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named  
Inventor : Kuansan Wang

Appln. No.: 09/662,242

Filed : September 14, 2000

For : METHOD AND APPARATUS FOR  
PERFORMING PLAN-BASED DIALOG

Docket No.: M61.12-0319

Group Art Unit: 2654

Examiner: D. Abebe

AMENDMENT AFTER FINAL

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ALEXANDRIA, VA 22313-1450, THIS

20<sup>th</sup> DAY OF January, 2004  
Thaddeus J. Y.

PATENT ATTORNEY

Sir:

This Amendment is in response to the Final Office Action mailed on December 3, 2003. Please amend the above-identified application as follows.

AMENDMENT TO THE CLAIMS

1. (Previously Presented) A method of providing a dialog interface in a computer system, the method comprising:

receiving user input;

applying the user input to a language model to determine a score for at least one surface semantic that describes the content of the user input;

applying a surface semantic to a discourse model to determine a score for at least one discourse semantic that describes the current state of a dialog with the user;

applying a discourse semantic to a behavior model to determine a score for at least one action to be taken by the computer system; and

taking an action based in part on the score provided by the discourse model and based in part on the score provided by the behavior model.

2. (Original) The method of claim 1 further comprising:

receiving multiple modes of user input;

applying each mode of user input to a language model provided for that mode of user input; and

determining a score for at least one surface semantic for each mode of user input that is received.

3. (Original) The method of claim 1 wherein applying a surface semantic to a discourse model comprises expanding a discourse semantic structure by placing values in slots of the discourse semantic structure based on the surface semantic.

4. (Original) The method of claim 3 wherein expanding the discourse semantic structure further comprises:

accessing a discourse memory to retrieve an explicit value for an implicit reference in the surface semantic; and

placing the explicit value in a slot in the discourse semantic structure.

5. (Original) The method of claim 4 wherein accessing a discourse memory comprises accessing a discourse memory comprising:

a long-term memory having values resolved from previous user input;

an explicit memory having explicit values found in a current user input; and

an implicit memory having values resolved from an implicit reference in the current user input.

6. (Original) The method of claim 5 wherein accessing a discourse memory comprises accessing the explicit memory first, the long-term memory second and the implicit memory last.

7. (Original) The method of claim 3 wherein applying a surface semantic to a discourse model further comprises after expanding a discourse semantic structure determining if a semantic token in the discourse semantic structure can be replaced by an entity.

8. (Original) The method of claim 7 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity comprises searching for an entity in a database based on attributes found in the discourse structure for the semantic token.

9. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be

replaced by an entity further comprises determining that the semantic token can be replaced by an entity if only one entity is found during the search of the database.

10. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity further comprises determining that the semantic token cannot be replaced by an entity if multiple entities are found during the search of the database.

11. (Original) The method of claim 10 wherein applying a surface semantic to a discourse model further comprises:

retrieving multiple entities from a database as possible replacements for a discourse semantic token;

adding the multiple entities as children of the discourse semantic token to form separate discourse semantic structures for each entity; and determining a score for each discourse semantic structure associated with each entity.

12. (Canceled)

13. (Previously Presented) The method of claim 1 wherein determining a score for at least one action comprises determining a score for an action of:

selecting one of multiple entities in a discourse semantic structure for a discourse semantic token; and

executing a command without asking the user to clarify which entity is correct for the semantic token.

14. (Original) The method of claim 13 wherein taking an action based in part on a score provided by the behavior model comprises taking the action of executing the command without asking the user to clarify which entity is correct for the semantic token.

15. (Previously Presented) The method of claim 1 wherein determining a score for at least one action further comprises applying an identity of an available user interface to the behavior model such that actions that are compatible with the available user interface receive generally higher scores than actions that are not compatible with the user interface.

16. (Original) The method of claim 1 wherein applying the user input to a language model further comprises describing the surface semantic using a markup language.

17. (Original) The method of claim 16 wherein applying a surface semantic to a discourse model further comprises describing a discourse semantic using a markup language.

18. (Original) The method of claim 17 further comprising applying a discourse semantic to a behavior model by converting the discourse semantic into an action described using a markup language.

19. (Original) The method of claim 18 wherein converting the discourse semantic comprises selecting a markup language for the action based on an available user interface.

20. (Original) The method of claim 19 wherein describing a discourse semantic using a markup language comprises describing the discourse semantic using an extensible markup language and wherein converting the discourse semantic comprises applying the

discourse semantic to an extensible stylesheet language transformation.

21. (Original) The method of claim 20 further comprising:  
receiving an instruction from a user to change the available user interface; and  
applying the discourse semantic to a second extensible stylesheet language transformation to convert the discourse semantic into an action described using a second markup language.

22. (Original) A system for providing a computer-based dialog interface to a user, the system comprising:  
a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state based on the user's input and a previous dialog state; and  
a rendering engine that uses a model to identify a score for at least one action based on a current dialog state.

23. (Original) The system of claim 22 wherein the dialog state engine comprises:

a recognition engine that uses a model to determine a score for at least one surface semantic based on the user input; and  
a discourse engine that uses a model to determine a score for at least one current dialog state based on the surface semantic from the recognition engine and a previous dialog state..

24. (Original) The system of claim 23 wherein the current dialog state is represented by a discourse semantic structure.

25. (Original) The system of claim 24 wherein the discourse engine expands a discourse semantic structure based on the surface semantic before using a model to determine a score for the discourse semantic structure.

26. (Original) The system of claim 25 wherein the dialog state engine further comprises a memory that is accessed by the discourse engine to resolve implicit references found in the user input.

27. (Original) The system of claim 26 wherein the memory comprises:

- a long-term memory containing values determined from previous user input;
- an explicit memory containing values taken from explicit references made in a current user input; and
- an implicit memory containing values that have been resolved from implicit references made in a current user input.

28. (Original) The system of claim 25 wherein the discourse semantic structure comprises semantic tokens that provide a general representation of specific entities and wherein the dialog state engine further comprises a database containing the specific entities that are represented by the semantic tokens.

29. (Canceled)

30. (Currently Amended) The system of claim ~~29-49~~ wherein the discourse engine attempts to collapse a portion of the discourse semantic structure by looking for entities in the database that have the same attributes associated with one of the semantic tokens.

31. (Original) The system of claim 30 wherein if more than one entity has the same attributes associated with one of the semantic tokens, the discourse engine adds the entities to the discourse semantic structure below the semantic token, identifies a separate discourse semantic structure for each entity and generates a separate score for the separate discourse semantic structure associate with each entity.

32. (Original) The system of claim 22 wherein the rendering engine also receives an indication of the output interfaces that are available and wherein the rendering engine uses the model to identify a best action to take given the current dialog state, the score of the current dialog state and the available output interface.

33. (Original) The system of claim 22 wherein the dialog state engine describes the current dialog state to the rendering engine by using a markup language.

34. (Canceled)

35. (Currently Amended) The system of claim ~~34-50~~ wherein the current dialog state is described using an extensible markup language and wherein the rendering engine utilizes extensible stylesheet language transformations to transform the extensible markup language into the second markup language.

36. (Original) The system of claim 35 wherein the dialog state engine further receives an indication from the user that they wish to change the output interface, and wherein the rendering engine changes the extensible stylesheet language transformation based on the change of the output interface so that the same extensible markup language description of the current dialog state is converted into a third markup language different from the second markup language.

37. (Original) A method of providing a dialog interface, the method comprising:

receiving input generated by a user;  
determining a current dialog state based on the received input and a past dialog state;  
formatting the current dialog state into a markup language page;  
converting the markup language page into an output markup language page based on the current dialog state and an available output user interface; and  
passing the output markup language page to the available output user interface.

38. (Original) The method of claim 37 wherein formatting the current dialog state comprises formatting the current dialog state in an extensible markup language.

39. (Canceled)

40. (Currently Amended) The method of claim ~~39-51~~ wherein converting the markup language page further comprises selecting an extensible stylesheet language transformation that forms a proper output markup language page for the output user interface.

41. (Original) The method of claim 40 further comprising:  
receiving an instruction from the user to change the  
output user interface to a new output user  
interface; and  
selecting a different extensible stylesheet language  
transformation so that the output markup language  
page is appropriate for the new output user  
interface.

42. (Original) The method of claim 38 wherein formatting the  
current dialog state comprises formatting a discourse semantic  
structure into a markup language page.

43. (Original) The method of claim 42 wherein determining a  
current dialog state comprises:  
identifying a surface semantic in the input;  
formatting the surface semantic into a surface semantic  
markup language page; and  
identifying a discourse semantic structure from the  
surface semantic markup language page.

44. (Original) A system for providing a computer-based dialog  
interface to a user, the system comprising:  
a dialog state engine that receives input from the user  
and that generates a markup language page  
representing a current dialog state; and  
a rendering engine that converts the markup language  
page representing the current dialog state into a  
markup language page representing an action.

45. (Original) The system of claim 44 wherein the rendering  
engine comprises extensible stylesheet language transformations  
that convert the markup language page representing the current

dialog state into the markup language page representing an action.

46. (Original) The system of claim 44 wherein the rendering engine utilizes a document matching portion of extensible stylesheet language transformations to convert the markup language page representing the current dialog state into machine instructions representing actions that are not described in a markup languages.

47. (Original) The system of claim 44 wherein the dialog state engine comprises:

- a recognition engine that receives user input and generates a markup language page representing the surface semantics of the user input; and
- a discourse engine that converts the markup language page representing the surface semantics into the markup language page representing the dialog state.

48. (Original) The system of claim 47 wherein the recognition engine applies a document generating portion of extensible stylesheet language transformations to produce the markup language page representing the surface semantics.

49. (New) A system for providing a computer-based dialog interface to a user, the system comprising:

- a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state that is represented by a discourse semantic structure comprising semantic tokens that provide a general representation of specific entities, the score

being based on the user's input and a previous dialog state, the dialog state engine comprising:  
a recognition engine that uses a model to determine a score for at least one surface semantic based on the user input;  
a discourse engine that uses a model to determine a score for at least one current dialog state based on the surface semantic from the recognition engine and a previous dialog state, the discourse engine expanding the discourse semantic structure based on the surface semantic and attempting to collapse a portion of the discourse semantic structure before using the model to determine a score for the discourse semantic structure; and  
a database containing specific entities that are represented by the semantic tokens; and  
a rendering engine that uses a model to identify a score for at least one action based on a current dialog state.

50. (New) A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state based on the user's input and a previous dialog state, wherein the dialog state engine describes the current dialog state using a markup language; and  
a rendering engine that uses a model to identify a score for at least one action based on a current dialog state and that converts the markup language

describing the current dialog state into a second markup language that describes an action.

51. (New) A method of providing a dialog interface, the method comprising:

receiving input generated by a user;  
determining a current dialog state based on the received input and a past dialog state;  
formatting the current dialog state into an extensible markup language page;  
converting the markup language page into an output markup language page based on the current dialog state and an available output user interface by applying the extensible markup language page to an extensible stylesheet language transformation; and passing the output markup language page to the available output user interface.

REMARKS

In the Office Action, claims 1-11 and 13-21 were allowed. Claims 22-28 and 32 were rejected under 35 U.S.C. §102(b) as being anticipated by Takebayashi et al. (U.S. Patent No. 5,357,596, hereinafter Takebayashi). Claims 33, 37, 38, 42-44, and 47 were rejected under 35 U.S.C. §103(a) as being obvious from Takebayashi in view of Ladd et al. (U.S. Patent No. 6,493,673, hereinafter Ladd). Claims 29-31, 34-36, 39-41, 45, 46 and 48 were objected to as being dependent on a rejected base claim but were indicated to be allowable if rewritten in independent form.

In the present amendment, claims 29 has been rewritten in independent form as new claim 49, and claim 29 has been cancelled. Claim 30 has been amended to depend from claim 49 instead of claim 29. Claim 31 depends from claim 30. Since claim 49 represents claim 29 written in independent form, claims 49, 30 and 31 are in form for allowance based on the indication in the office action that claim 29 would be allowable if written in independent form.

With the present amendment, claim 34 has been written in independent form as new claim 50 and claim 34 has been cancelled. Claim 35 has been amended to depend from claim 50 instead of claim 34. Claim 36 depends from claim 35. Since claim 50 represents claim 34 written in independent form, claims 50, 35 and 36 are in form for allowance based on the indication in the office action that claim 34 would be allowable if written in independent form.

With the present amendment, claim 39 has been written in independent form as new claim 51 and claim 39 has been cancelled. Claim 40 has been amended to depend from claim 51 instead of claim 39. Claim 41 depends from claim 40. Since claim 51 represents claim 39 written in independent form, claims 51, 40 and 41 are in form for allowance based on the indication in the

office action that claim 39 would be allowable if written in independent form.

Claims 22-28, 32 and 33,

Independent claim 22 is directed to a system that provides a computer-based dialog interface to a user. The system includes a dialog state engine that receives input from a user and that generates a score for a current dialog state based on the user's input and a previous dialog state. A rendering engine then uses a model to identify a score for at least one action based on a current dialog state.

None of the cited references show or suggest a rendering engine that is able to identify a score for an action based on a current dialog state. In particular, neither Takebayashi nor Ladd show the scoring of an action based on a current dialog state.

In the Final Office Action, it was asserted that Takebayashi showed such a rendering engine in FIGS. 1 and 13. However, neither of these Figures shows a rendering engine that scores an action based on a current dialog state. Specifically, FIG. 13 does not show the scoring of an action based on a dialog state. Instead, FIG. 13 shows the scoring of two possible semantic representations of what the user has said. Using these scores, one of the semantic representations is selected as representing the user's input at step S115. Using this semantic representation, the system identifies a current dialog state at step S117. Since step S117 marks the end of FIG. 13, FIG. 13 does not show the further step of scoring possible actions based on the current dialog state. It only shows the identification of a current dialog state.

In the Final Office Action, this argument was said to not be persuasive in light of Column 6, lines 55-58 of Takebayashi. In the cited section, Takebayashi indicates that the semantic determination of the response output is made using a

dialogue history and a current dialogue state. This section does not make any reference to scoring possible actions. While Takebayashi does take the current dialogue state into consideration when selecting a response, it does not score possible actions. It simply selects a response given a current dialogue state, a dialogue history, a dialogue management procedure, and a knowledge on specialized application field. There is no mention of scoring possible actions. As such, Takebayashi does not show or suggest the invention of claim 22.

Ladd also fails to show or suggest scoring possible actions based on a current dialog state. As such, the combination of Takebayashi and Ladd does not show or suggest the invention of claim 22 or claims 23-28, 32 and 33, which depend therefrom.

Claims 37, 38, 42 and 43

Independent claim 37 is directed to a method of providing a dialog interface. The method includes receiving input generated by a user and determining a current dialog state based on the input. The current dialog state is then formatted into a markup language page that is converted into an output markup language page based on the current dialog state and an available user interface. The output markup language page is then passed to the interface.

The invention of claim 37 is not shown or suggested by the combination of Takebayashi and Ladd. In particular, neither of these references shows or suggests converting a markup language page representing a current dialog state into an output markup language page based on the current dialog state and an available output user interface.

Although Ladd does show defining a hierarchy of dialog states in a markup language page, it does not show or suggest converting one markup language page into another markup language page. As such, it cannot show or suggest making such a

conversion based on a current dialog state or an available user interface.

In the Final Office Action this argument was not deemed persuasive in light of Col. 17, lines 1-20 and Fig. 4 of Ladd. In particular, the Final Office Action asserted that "Ladd teaches where markup language is generated based on the status of the current dialogue state and interpreted by the markup language interpreter obviously according to the user interface ..." Applicants respectfully dispute this assertion.

Ladd does not generate a markup language page based on a current dialogue state. Instead, Ladd uses a markup language page to define possible states that the voice browser can be in.

The same page that defines these states also includes markup tags for text that is converted into speech by the voice browser.

In addition, and more importantly, Ladd makes no mention of converting one markup language page into another markup language page. There is simply no suggestion in Ladd for converting one page into another.

Since neither Takebayashi nor Ladd show or suggest converting one markup language page into another markup language page, the combination of these two references does not show or suggest the invention of claim 37, or claims 38, 42, and 43, which depend therefrom.

#### Claims 44-48

Independent claim 44 is a system for providing a dialog interface to a user. The system includes a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state. The system also includes a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action.

Neither Takebayashi nor Ladd show or suggest the system of claim 44. In particular, neither reference shows or suggests

an engine that converts one markup language page into another markup language page. As such, claim 44 and claims 45-48, which depend therefrom, are patentable over the combination of Takebayashi and Ladd.

Conclusion

In light of the above remarks, claims 1-11, 13-28, 30-33, 35-38, and 40-51 are patentable over the cited art. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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**COPY**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named  
Inventor : Kuansan Wang

Appln. No.: 09/662,242

Filed : September 14, 2000

For : METHOD AND APPARATUS FOR  
PERFORMING PLAN-BASED DIALOG

Docket No.: M61.12-0319

Group Art Unit: 2654

Examiner: D. Abebe

**PETITION FOR ONE-MONTH EXTENSION OF  
TIME AND FEE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I HEREBY CERTIFY THAT THIS PAPER IS BEING  
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2<sup>nd</sup> DAY OF April, 2004  
This 17th

PATENT ATTORNEY

Sir:

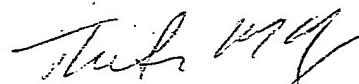
Pursuant to 37 C.F.R. § 1.136(a), Applicant hereby petitions for a one-month extension of time to respond to the Office Action dated December 3, 2003. Enclosed is a check in the amount of \$110.00 to cover the fee for the extension of time. If an additional extension of time is required, please consider this a petition therefor.

The Director is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 23-1123. A duplicate of this Petition for Extension of Time is enclosed.

Respectfully submitted,

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TMM:sew

RESPONSE UNDER 37 C.F.R. § 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 2600

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named  
Inventor : Kuansan Wang

Appln. No.: 09/662,242

Filed : September 14, 2000

For : METHOD AND APPARATUS FOR  
PERFORMING PLAN-BASED DIALOG

Docket No.: M61.12-0319

Group Art Unit: 2654

Examiner: D. Abebe

SUPPLEMENTAL AMENDMENT AFTER FINAL

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I HEREBY CERTIFY THAT THIS PAPER IS BEING  
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COMMISSIONER FOR PATENTS, P.O. BOX 1450,  
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2<sup>nd</sup> DAY OF April 2004  
This 19th day  
PATENT ATTORNEY

Sir:

This Amendment is in response to the Advisory Action  
mailed February 4, 2004 and the Final Office Action mailed on  
December 3, 2003. Please amend the above-identified application  
as follows.

AMENDMENT TO THE CLAIMS

1. (Previously Presented) A method of providing a dialog interface in a computer system, the method comprising:

receiving user input;  
applying the user input to a language model to determine a score for at least one surface semantic that describes the content of the user input;  
applying a surface semantic to a discourse model to determine a score for at least one discourse semantic that describes the current state of a dialog with the user;  
applying a discourse semantic to a behavior model to determine a score for at least one action to be taken by the computer system; and  
taking an action based in part on the score provided by the discourse model and based in part on the score provided by the behavior model.

2. (Original) The method of claim 1 further comprising:

receiving multiple modes of user input;  
applying each mode of user input to a language model provided for that mode of user input; and  
determining a score for at least one surface semantic for each mode of user input that is received.

3. (Original) The method of claim 1 wherein applying a surface semantic to a discourse model comprises expanding a discourse semantic structure by placing values in slots of the discourse semantic structure based on the surface semantic.

4. (Original) The method of claim 3 wherein expanding the discourse semantic structure further comprises:

accessing a discourse memory to retrieve an explicit value for an implicit reference in the surface semantic; and placing the explicit value in a slot in the discourse semantic structure.

5. (Original) The method of claim 4 wherein accessing a discourse memory comprises accessing a discourse memory comprising:

a long-term memory having values resolved from previous user input;

an explicit memory having explicit values found in a current user input; and

an implicit memory having values resolved from an implicit reference in the current user input.

6. (Original) The method of claim 5 wherein accessing a discourse memory comprises accessing the explicit memory first, the long-term memory second and the implicit memory last.

7. (Original) The method of claim 3 wherein applying a surface semantic to a discourse model further comprises after expanding a discourse semantic structure determining if a semantic token in the discourse semantic structure can be replaced by an entity.

8. (Original) The method of claim 7 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity comprises searching for an entity in a database based on attributes found in the discourse structure for the semantic token.

9. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be

replaced by an entity further comprises determining that the semantic token can be replaced by an entity if only one entity is found during the search of the database.

10. (Original) The method of claim 8 wherein determining if a semantic token in the discourse semantic structure can be replaced by an entity further comprises determining that the semantic token cannot be replaced by an entity if multiple entities are found during the search of the database.

11. (Original) The method of claim 10 wherein applying a surface semantic to a discourse model further comprises:

retrieving multiple entities from a database as possible replacements for a discourse semantic token;

adding the multiple entities as children of the discourse semantic token to form separate discourse semantic structures for each entity; and determining a score for each discourse semantic structure associated with each entity.

12. (Canceled)

13. (Previously Presented) The method of claim 1 wherein determining a score for at least one action comprises determining a score for an action of:

selecting one of multiple entities in a discourse semantic structure for a discourse semantic token;

and

executing a command without asking the user to clarify which entity is correct for the semantic token.

14. (Original) The method of claim 13 wherein taking an action based in part on a score provided by the behavior model comprises taking the action of executing the command without asking the user to clarify which entity is correct for the semantic token.

15. (Previously Presented) The method of claim 1 wherein determining a score for at least one action further comprises applying an identity of an available user interface to the behavior model such that actions that are compatible with the available user interface receive generally higher scores than actions that are not compatible with the user interface.

16. (Original) The method of claim 1 wherein applying the user input to a language model further comprises describing the surface semantic using a markup language.

17. (Original) The method of claim 16 wherein applying a surface semantic to a discourse model further comprises describing a discourse semantic using a markup language.

18. (Original) The method of claim 17 further comprising applying a discourse semantic to a behavior model by converting the discourse semantic into an action described using a markup language.

19. (Original) The method of claim 18 wherein converting the discourse semantic comprises selecting a markup language for the action based on an available user interface.

20. (Original) The method of claim 19 wherein describing a discourse semantic using a markup language comprises describing the discourse semantic using an extensible markup language and wherein converting the discourse semantic comprises applying the

discourse semantic to an extensible stylesheet language transformation.

21. (Original) The method of claim 20 further comprising:  
receiving an instruction from a user to change the available user interface; and applying the discourse semantic to a second extensible stylesheet language transformation to convert the discourse semantic into an action described using a second markup language.

22-29. (Canceled)

30. (Previously Presented) The system of claim 49 wherein the discourse engine attempts to collapse a portion of the discourse semantic structure by looking for entities in the database that have the same attributes associated with one of the semantic tokens.

31. (Original) The system of claim 30 wherein if more than one entity has the same attributes associated with one of the semantic tokens, the discourse engine adds the entities to the discourse semantic structure below the semantic token, identifies a separate discourse semantic structure for each entity and generates a separate score for the separate discourse semantic structure associate with each entity.

32-34. (Canceled)

35. (Previously Presented) The system of claim 50 wherein the current dialog state is described using an extensible markup language and wherein the rendering engine utilizes extensible

stylesheet language transformations to transform the extensible markup language into the second markup language.

36. (Original) The system of claim 35 wherein the dialog state engine further receives an indication from the user that they wish to change the output interface, and wherein the rendering engine changes the extensible stylesheet language transformation based on the change of the output interface so that the same extensible markup language description of the current dialog state is converted into a third markup language different from the second markup language.

37-39. (Canceled)

40. (Previously Presented) The method of claim 51 wherein converting the markup language page further comprises selecting an extensible stylesheet language transformation that forms a proper output markup language page for the output user interface.

41. (Original) The method of claim 40 further comprising:  
receiving an instruction from the user to change the output user interface to a new output user interface; and  
selecting a different extensible stylesheet language transformation so that the output markup language page is appropriate for the new output user interface.

42-44. (Canceled)

45. (Currently Amended) — A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state; and a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action, The system of claim 44 wherein the rendering engine comprises extensible stylesheet language transformations that convert the markup language page representing the current dialog state into the markup language page representing an action.

46. (Currently Amended) A system for providing a computer-based dialog interface to a user, the system comprising:  
a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state; and a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action, The system of claim 44 wherein the rendering engine utilizes a document matching portion of extensible stylesheet language transformations to convert the markup language page representing the current dialog state into machine instructions representing actions that are not described in a markup languages.

47. (Canceled)

48. (Currently Amended) A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that generates a markup language page representing a current dialog state, wherein the dialog state engine comprises:

a recognition engine that receives user input and generates a markup language page representing the surface semantics of the user input, ~~The system of claim 47~~ wherein the recognition engine applies a document generating portion of extensible stylesheet language transformations to produce the markup language page representing the surface semantics; and

a discourse engine that converts the markup language page representing the surface semantics into the markup language page representing the dialog state; and

a rendering engine that converts the markup language page representing the current dialog state into a markup language page representing an action.

49. (Previously Presented) A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state that is represented by a discourse semantic structure comprising semantic tokens that provide a general representation of specific entities, the score being based on the user's input and a previous dialog state, the dialog state engine comprising:

a recognition engine that uses a model to determine a score for at least one surface semantic based on the user input; a discourse engine that uses a model to determine a score for at least one current dialog state based on the surface semantic from the recognition engine and a previous dialog state, the discourse engine expanding the discourse semantic structure based on the surface semantic and attempting to collapse a portion of the discourse semantic structure before using the model to determine a score for the discourse semantic structure; and a database containing specific entities that are represented by the semantic tokens; and a rendering engine that uses a model to identify a score for at least one action based on a current dialog state.

50. (Previously Presented) A system for providing a computer-based dialog interface to a user, the system comprising:

a dialog state engine that receives input from the user and that uses at least one model to generate at least one score for a current dialog state based on the user's input and a previous dialog state, wherein the dialog state engine describes the current dialog state using a markup language; and a rendering engine that uses a model to identify a score for at least one action based on a current dialog state and that converts the markup language describing the current dialog state into a second markup language that describes an action.

51. (Previously Presented) A method of providing a dialog interface, the method comprising:

receiving input generated by a user;  
determining a current dialog state based on the received input and a past dialog state;  
formatting the current dialog state into an extensible markup language page;  
converting the markup language page into an output markup language page based on the current dialog state and an available output user interface by applying the extensible markup language page to an extensible stylesheet language transformation; and passing the output markup language page to the available output user interface.

REMARKS

In the Advisory Action, claims 1-11, 13-21, 30, 31, 35, 36, 40, 41, and 49-51 were allowed, claims 45, 46 and 48 were objected to for depending from a rejected base claim, and claims 22-28, 32, 33, 37, 38, 42-44 and 47 were rejected.

With this Supplemental Amendment After Final, Applicants are canceling all of the rejected claims and are amending claims 45, 46, and 48 so that they are now independent claims that include all of the limitations of their respective rejected base claims. As such, all of the claims remaining in the application are in form for allowance. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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